

REMARKS

Claims 1-9 are pending. Claims 1, 2, 3, 4 and 9 are independent. Claims 4-9 are new.

Title:

The Examiner has objected to the title of the invention as not being descriptive. As per the Examiner's suggestion, the title of the invention has been amended herein to, "Method, Apparatus, and Recording Medium for Facial Area Adjustment of an Image."

Drawings:

The drawings have been objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "S1" and "S2" have been used to designate both Image Data and Processed Image Data in Fig. 1 and the steps of Input Image Data and Extract Face Area in Fig. 5.

A Drawing Change Authorization Request has been submitted for changes to Fig. 5 such that the labels S1-S5 are changed to S100-S500. Additionally, the specification has been amended herein to accommodate these changes.

Accordingly, Applicant respectfully requests removal of this objection.

Specification:

The disclosure has been objected to due to an informality. The Examiner states that reference Nos. A1 and S1 are both used to represent data associated with a face area extracted by Face Area Extracting Means 3.

Applicant has labeled the first output S1 of the Face Area Extracting Means differently than the second output A1 of the Face Area Extracting Means in order to denote the two different outputs. It is made clear in the specification on at least page 9, lines 6-7 that the image data representing face area A1 and the image data representing the face area S1 are the same data. The Applicant does not believe that at this point it is necessary to modify the figures and the specification to provide any further detail on this point. Often times it is customary to use different labels to represent different output streams even though the output streams contain the same data. Therefore, no further amendments or drawing changes have been made in response to this objection and Applicant respectfully requests removal of this objection.

Claim Rejections - 35 U.S.C. § 112

Claims 1-3 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention. Applicant respectfully traverses this rejection.

In the Examiner's opinion the specification lacks support for the alternative situations that the use of the phrase "and/or" provides for in the claims with respect to the color and density adjustment. To address this issue, claims 1-3 have been amended to clarify the use of "and/or". Therefore, Applicant respectfully submits that these claims are supported by the specification.

Additionally, the Examiner alleges there is inadequate support for the method of utilizing the color information to adjust the color of the face area.

However, Applicant respectfully submits that there are many methods of using color information and density information to appropriately adjust faces in images that are well known in the art. Some of these methods are discussed in the description of the related art section of Applicant's disclosure. For example, Japanese Unexamined Patent Publication No. 6(1994)-67320 provides a method for a face extraction by dividing a portrait based on distributions of hue and chroma values of the portrait and a face area based on a shape of an area positioned close to the candidate

area. The exposure of the photosensitive material is based on the color and density of the face area and the color and density of the face of the person become appropriate. Japanese Unexamined Patent Publication No. 8(1996)-110603 discloses another method of generating a photograph including a figure whose face has appropriate color and/or density. In this method, a face area of the figure is extracted from a photograph generated in uneven lighting due to shade or a flash, and an exposure is determined by removing the illumination variance from the face area. In this manner, each face has appropriate color and/or density in the photograph. Therefore, it has been established that those of ordinary skill in the art can process image data of faces and use correction factors to be applied to the faces.

As described in Applicant's disclosure, the present invention utilizes a surrounding color density detecting means for detecting color and/or density of an area surrounding the face area as color density information H. Additionally, the present invention utilizes an adjusting means 5 for generating processed image data S2 by carrying out processing for adjusting color density on image data S1 representing the face area A1 extracted by a face area extracting means 3, based on the color density information H of the area

surrounding the face area A1 detected by the surrounding color density detecting means 4.

Beginning on page 6, line 11 through page 8, the specification provides detail regarding how the surrounding color density detecting means 4 and adjusting means 5 operate. A specific example of adjusting the color is provided on page 8, lines 19-25.

In this example, the color of the face area A1 is adjusted (into a reddish color in the disclosed example) when the color of the face area A1 has an undesirable appearance due to the color of the surrounding area (blue in the disclosed example). This example makes clear a principle of the disclosed embodiments -- that the color of the face area A1 can be adjusted to counteract an undesired visual effect resulting from color of the surrounding area A2. Applicant respectfully submits that the Office Action fails to support or even make the assertion that one of ordinary skill in the art would require undue experimentation to adjust the color of a face area to counteract the visual effect of other colors of a surrounding area consistent with principles set forth in the disclosure. Accordingly, the Office Action fails to satisfy the test for finding non-enablement. See MPEP § 2164.01.

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 112, first paragraph.

Claim Rejection 35 U.S.C. § 102

Claims 1-3 are rejected under 35 U.S.C. § 102(b) as being anticipated by Takei (U.S. Patent No. 5,353,058). Applicant respectfully traverses this rejection.

Takei discloses an automated exposure control apparatus. The apparatus divides each image frame into 10 areas Y1-Y10 and determines the average value of the luminance signal for each area. Additionally, Takei discloses designated 12 areas of the image C1-C12 for which chromaticity information is generated.

Takei also discloses determining whether or not an image is in a backlighted or a frontlighted state. For example, the backlighted state is judged to exist if the luminance level of the subject periphery exceeds the minimum luminance level of the central portion of the subject. On the other hand, the frontlighted state is judged to exist when the central portion is conspicuously brighter than the peripheral portion.

Further, Takei discloses exposure correction methods which are performed based on whether or not the image is judged to be

frontlighted or backlighted. Once an image is assessed as having a backlighting condition, the apparatus determines the proper correction by utilizing the area of the image in which a flesh tone or face exists. For example, in col. 9, lines 40-59, exposure correction is performed on an image with a face in areas C2-C5 and Takei disclose generating the appropriate correction signal based on area Y2 which contains C5 and part of the face.

Additionally, in a more general sense, Takei also discloses performing exposure correction of flesh colored areas of an image based on the area of the image containing the flesh tone, even if it is not a face. As discussed in col. 9, lines 30-39, each of areas C1-C12 is corrected based on the luminance signal of corresponding area 41-46.

Since the correction of faces and flesh areas in Takei occurs based on the luminance and color data of the flesh or face area, Takei does not disclose, "adjusting at least one of density and/or color of the face area based on density information and/or color information, respectively, of an area surrounding the face area," as recited by claim 1 and similarly claim 3. Further, Takei does not disclose, "adjusting means for adjusting at least one of density and/or color of the face area, based on density information and/or

color information, respectively, of an area surrounding the face area," as recited by claim 2.

New Claims

Newly added claims 4-9 are supported in the specification on at least pages 5-9. Further, these claims are allowable because the prior art does not teach the claim features.

Conclusion

In view of the above amendments and remarks, reconsideration of the rejection and allowance of claims 1-9 is respectfully requested.

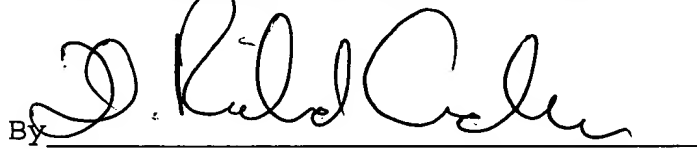
Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

(Rev. 11/28/01)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Title:

The Title has been amended as follows:

--METHOD, APPARATUS, AND RECORDING MEDIUM FOR [IMAGE
PROCESSING] FACIAL AREA ADJUSTMENT OF AN IMAGE--

In the Specification:

The subtitle on page 1, line 4, has been as amended as follows:

--[Filed] Field of the Invention--

The paragraph beginning on page 9, line 1, has been as amended
as follows:

--An operation of an embodiment of the present invention will be explained next. Figure 5 is a flow a chart showing the operation of this embodiment. The image data S0 generated by the image generating means 2 are input to the image processing apparatus 1 (Step [1] S100). In the image processing apparatus 1, the face area extracting means 3 extracts the face area A1 of a figure (Step [S2] S200). The image data representing the face area A1 are the image data S1. The surrounding color density detecting means 4 detects the color density information H of the area surrounding the face area A1 (Step [S3] S300). Based on the color

density information H, the adjusting means 5 adjusts the color density of the face area A1 as has been described above, and the processed image data S2 are obtained (Step [S4]S400). The processed image data S2 are output by the output means 6 (Step [S5]S500).--

In the Claims:

The claims have been amended as follows:

1. (Amended) An image processing method for carrying out image processing on an image including a figure, the image processing method comprising the steps of:

extracting a face area of the figure from the image; and

adjusting at least one of density and/or color of the face area based on density information and/or color information, respectively, of an area surrounding the face area.

2. (Amended) An image processing apparatus for carrying out image processing on an image including a figure, the image processing apparatus comprising:

face area extracting means for extracting a face area of the figure from the image; and

adjusting means for adjusting at least one of density and/or color of the face area, based on density information and/or color information, respectively, of an area surrounding the face area.

3. (Amended) A computer-readable recording medium storing a program to cause a computer to execute a method of carrying out image processing on an image including a figure, the program comprising the procedures of:

extracting a face area of the figure from the image; and

adjusting at least one of density and/or color of the face area based on density information and/or color information, respectively, of an area surrounding the face area.

Claims 4-9 have been added.

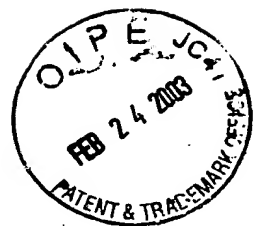
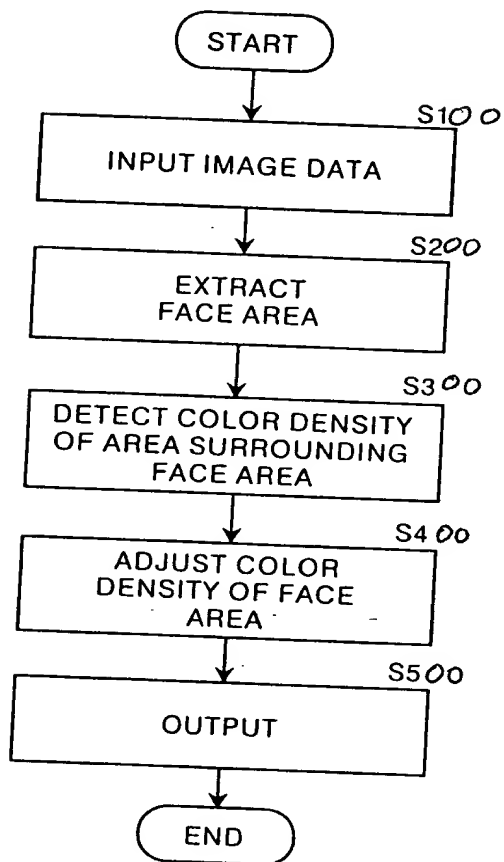


FIG.5



Approved
CTS